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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,088	10/05/2000	Seiji Nabeshima	1396-00	8261

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EXAMINER

WESSMAN, ANDREW E

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 03/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-6

# Office Action Summary

Application No.

09/680,088

Applicant(s)

NABESHIMA ET AL.

Examiner

Andrew E Wessman

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-4 have been submitted for examination. Claim 4 has been withdrawn from consideration.

***Election/Restrictions***

2. Applicant's election without traverse of claims 1-3 in Paper No. 5 is acknowledged.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 2 recites the limitation "said oxide inclusion particles" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

There is no mention of oxide inclusion particles in claim 1, only mention of inclusions. It is assumed that "said oxide inclusion particles" refers to the term "inclusions" in claim 1 and the claim will be examined as though that were the case. It is recommended that either claim 1 be amended to recite "oxide inclusion particles" instead of "inclusions", or claim 2 amended to recite "inclusions" instead of "oxide inclusion particles".

***Claim Rejections - 35 USC § 102***

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al. (U.S. Patent No. 5,616,188).

Kato et al. anticipates the claimed invention. Kato et al. discloses (see abstract) a method for producing steel in which a material containing metallic calcium is added to molten steel in an amount of from 0.0005wt% to 0.005wt%. Kato et al. discloses (col. 3, lines 3-15) that the addition of calcium is useful for controlling the formation of inclusions in the steel which can have a detrimental effect during processing.

Kato et al. does not specifically teach that the equilibrium sulfur soluble amount is less than 0.03wt%. However, Kato et al. does teach that the product of the %Ca and %S are less than about  $2 \times 10^{-5}$ . By this relationship, the highest sulfur concentration would be seen at the lowest calcium concentration, 0.0005wt%, and using that value to calculate the sulfur content it is found that the content of sulfur must inherently be 0.04wt% or less. Sulfur contents of less than 0.04wt% , which overlaps less than 0.03wt%, are therefore within the scope of the disclosure of Kato et al. and Kato et al. anticipates the claimed invention.

In regards to the features of claim 2, Kato et al. does not disclose that at least 80% of inclusions of 2 microns or larger will have an equilibrium sulfur soluble amount

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of 0.03wt% or less. However, as discussed above, the sulfur of the inclusions would inherently be 0.04wt% or less, and this would apply to all of the inclusions regardless of their size.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al.

The teachings of Kato et al. are discussed in above paragraph 6.

Kato et al. does not teach a mathematical formula for calculating the equilibrium sulfur soluble amount. However, Kato et al. does teach a steel with similar composition to achieve similar results, and Kato et al. teaches (see abstract) a relationship wherein the value of calcium can be used to calculate the upper limit of the sulfur content. It would have been expected by one of ordinary skill in the art that the Kato et al.'s alloy would meet the disclosed mathematical relationship. It is the burden of the applicant to show that the mathematical relationship provided can be used to achieve an unexpected result when compared with the closest prior art.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Yazawa et al. (U.S. Patent No. 5,413,754) teaches steels with similar calcium content to control the formation of inclusions.

Nabeshima et al. (U.S. Patent No. 6,117,389) teaches steels with controlled inclusion formation.


Nakato et al. (U.S. Patent No. 6,120,578) teaches steels with no formation of cluster aluminum inclusions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew E Wessman whose telephone number is (703)305-3163. The examiner can normally be reached on Monday through Friday, 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703)308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

AEW  
March 6, 2002

ROY KING   
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700